1. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax + b)(cx + d); b \leq d$.

$$54x^2 + 75x + 25$$

A. $a \in [17.97, 18.27]$, $b \in [1, 10]$, $c \in [2.94, 3.17]$, and $d \in [3, 9]$

B. $a \in [2.63, 3.64]$, $b \in [1, 10]$, $c \in [17.76, 18.39]$, and $d \in [3, 9]$

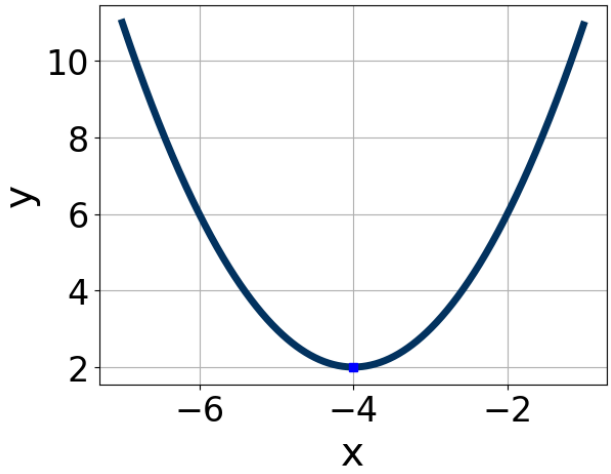
C. $a \in [7.53, 9.28]$, $b \in [1, 10]$, $c \in [5.06, 6.19]$, and $d \in [3, 9]$

D. $a \in [0.01, 2.03]$, $b \in [25, 32]$, $c \in [0.85, 1.82]$, and $d \in [44, 46]$

E. None of the above.

---

2. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [1, 3]$, $b \in [-8, -6]$, and $c \in [17, 19]$

B. $a \in [1, 3]$, $b \in [-8, -6]$, and $c \in [12, 15]$

C. $a \in [-2, 0]$, $b \in [7, 12]$, and $c \in [-15, -13]$

D. $a \in [1, 3]$, $b \in [7, 12]$, and $c \in [17, 19]$

E. $a \in [-2, 0]$, $b \in [-8, -6]$, and $c \in [-15, -13]$

---

3. Factor the quadratic below. Then, choose the intervals that contain the constants in the form $(ax+b)(cx+d); b \leq d$.

$$24x^2 + 38x + 15$$

A. $a \in [3.6, 4.3]$, $b \in [2, 5]$, $c \in [3.7, 8.4]$, and $d \in [2, 8]$

B. $a \in [-2.2, 2.5]$, $b \in [16, 22]$, $c \in [0.2, 2.1]$, and $d \in [18, 23]$

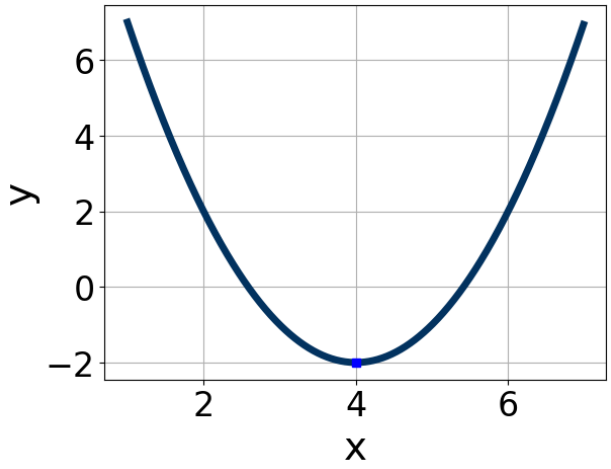
C. $a \in [4.3, 9.5]$, $b \in [2, 5]$, $c \in [2.5, 3.1]$, and $d \in [2, 8]$

D. $a \in [-2.2, 2.5]$, $b \in [2, 5]$, $c \in [17.7, 21.1]$, and $d \in [2, 8]$

E. None of the above.

---

4. Write the equation of the graph presented below in the form $f(x) = ax^2 + bx + c$, assuming $a = 1$ or $a = -1$. Then, choose the intervals that a, b, and c belong to.



A. $a \in [0, 3]$, $b \in [-11, -7]$, and $c \in [12, 16]$

B. $a \in [0, 3]$, $b \in [7, 10]$, and $c \in [12, 16]$

C. $a \in [-1, 0]$, $b \in [7, 10]$, and $c \in [-18, -17]$

D. $a \in [0, 3]$, $b \in [7, 10]$, and $c \in [17, 20]$

E. $a \in [-1, 0]$, $b \in [-11, -7]$, and $c \in [-18, -17]$

---

5. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-19x^2 - 10x + 3 = 0$$

A. $x_1 \in [-0.47, 1]$ and $x_2 \in [0.36, 0.79]$

B. $x_1 \in [-18.58, -17.34]$ and $x_2 \in [17.55, 18.46]$

C. $x_1 \in [-5.15, -3.78]$ and $x_2 \in [13.22, 15.05]$

D. $x_1 \in [-1.53, -0.48]$ and $x_2 \in [-0.67, 0.65]$

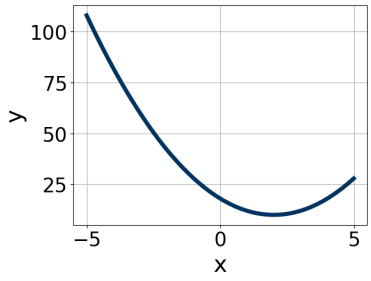
E. There are no Real solutions.

---

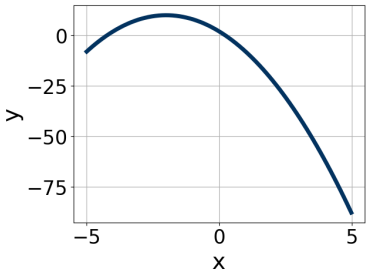
6. Graph the equation below.

$$f(x) = (x + 2)^2 + 10$$

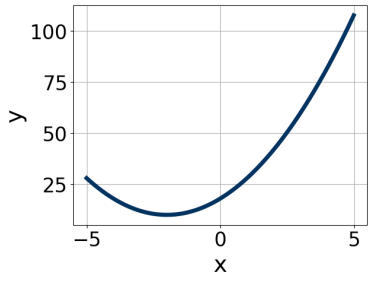
A.



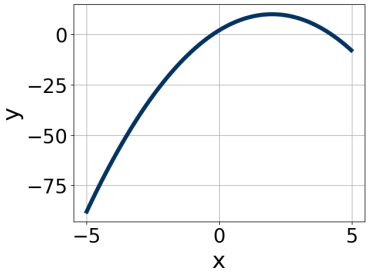
C.



B.



D.



E. None of the above.

---

7. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with $x_1 \leq x_2$ (if they exist).

$$-15x^2 - 13x + 4 = 0$$

A. $x_1 \in [-0.3, 0.4]$ and $x_2 \in [0.4, 2.8]$

B. $x_1 \in [-1.4, -0.91]$ and $x_2 \in [0, 1]$

C. $x_1 \in [-21.08, -19.8]$ and $x_2 \in [19.5, 20.1]$

D. $x_1 \in [-3.72, -3.56]$ and $x_2 \in [15.5, 17.7]$

E. There are no Real solutions.

---

8. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$15x^2 - 2x - 24 = 0$$

A. $x_1 \in [-1.34, -0.52]$ and $x_2 \in [1.19, 1.54]$

B. $x_1 \in [-18.42, -16.06]$ and $x_2 \in [19.15, 22.14]$

C. $x_1 \in [-0.61, 0.88]$ and $x_2 \in [3.23, 4.34]$

D. $x_1 \in [-3.25, -1.8]$ and $x_2 \in [0.52, 0.91]$

E. $x_1 \in [-7.68, -4.82]$ and $x_2 \in [-0.11, 0.28]$

---

9. Solve the quadratic equation below. Then, choose the intervals that the solutions x_1 and x_2 belong to, with $x_1 \leq x_2$.

$$20x^2 + 21x - 54 = 0$$

A. $x_1 \in [-2.36, -1.61]$ and $x_2 \in [0.71, 1.78]$

B. $x_1 \in [-45.17, -43.41]$ and $x_2 \in [23.82, 24.07]$

C. $x_1 \in [-1.74, -0.72]$ and $x_2 \in [2.86, 3.92]$

D. $x_1 \in [-6.09, -3.29]$ and $x_2 \in [0.49, 1.1]$

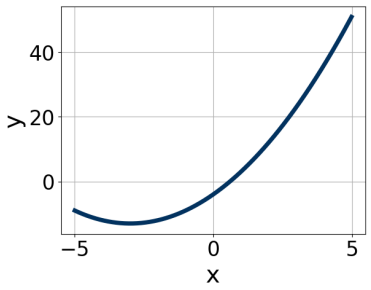
E. $x_1 \in [-9.23, -8.95]$ and $x_2 \in [-0.1, 0.31]$

---

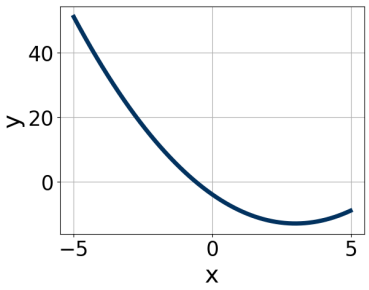
10. Graph the equation below.

$$f(x) = -(x - 3)^2 - 13$$

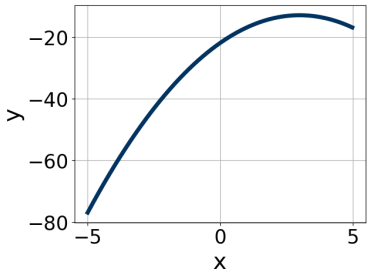
A.



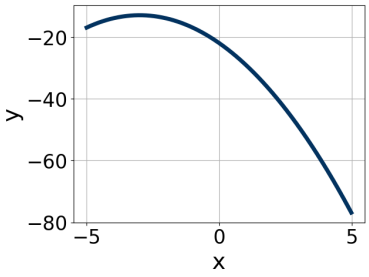
C.



B.



D.



E. None of the above.
